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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/613,427

07/03/2003

Jarrod Eliason

RAM 493 DIV

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06/10/2004

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1200 17th Street
Denver, CO 80220

EXAMINER

LAM, TUAN THIEU

ART UNIT

PAPER NUMBER

2816

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/613,427	Applicant(s) ELIASON, JARROD	
	Examiner Tuan T. Lam	Art Unit 2816	<i>Am</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39, 42, 43, 45, 49-52, 54, 56, 58, 60 and 81 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39, 42, 43, 45, 49-52, 54, 56, 58, 60 and 81 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/3/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/3/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is a response to the preliminary amendment filed 7/3/2003. Claims 1-39, 42-43, 45, 49-52, 54, 56, 58, 60 and 81 are pending.

Drawings

1. Figures 1, 2, 13, 14 and 20 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-39, 42, 43, 45, 49-52, 54, 56, 58, 60 and 81 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 81, the recitation of "a ferroelectric capacitor circuit .. coupled between the internal node of the first logic gate and the internal node of the second logic gate" is indefinite because it is misdescriptive of the present invention. As shown in figure 4, the ferroelectric capacitor circuit (z0, z1, z10 and z11) coupled to ground and selective coupled to the Q output and complementary Q output via the switches controlled by WL and WLB signals. The

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ferroelectric capacitor circuit is not coupled between the internal node of the first logic gate and the internal node of the second logic gate as recited. Clarification and correction are required.

In claim 2, the recitation of “the output” in lines 4, 7 and 8 is indefinite because it is misdescriptive. As shown in figure 4, the drains of the first P channel transistor (N1PB), the second P channel transistor (N1PA), the first N channel transistor (N1NA) coupled to the complementary Q output. Correction is required.

In claim 3, the recitation of “the output” in lines 5, 8 and 9 is indefinite because it is misdescriptive. As shown in figure 4, the drains of the first P channel transistor (N1PB), the second P channel transistor (N1PA), the first N channel transistor (N1NA) coupled to the complementary Q output. Correction is required.

In claims 6 and 7, the recitation of “internal circuit node of the first NAND gate” (lines 3-4), “internal circuit node of the second NAND gate” (lines 5-6), “internal circuit nodes of the first and second NAND gates” (lines 7-8) is indefinite because it is misdescriptive. As shown in figure 4, “internal circuit node of the first NAND gate” (lines 3-4) is supposed to be --Q output--, “internal circuit node of the second NAND gate” (lines 5-6) is supposed to --complementary Q output--, “internal circuit nodes of the first and second NAND gates” (lines 7-8) is supposed to be --Q and complementary Q outputs--. Correction is required.

In claim 8, the recitation of “internal circuit nodes of the first and second NAND gates” (lines 2-3) is indefinite because it is misdescriptive. As shown in figure 4, it is supposed to be --Q and complementary Q outputs--. Correction is required.

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In claim 9, “internal nodes of the first and second NAND gates” (lines 2-3) is indefinite because it is misdescriptive. As shown in figure 4, it is supposed to be --Q and complementary Q outputs--. Correction is required.

In claim 15, the recitation of “the output” in lines 6, 7 and 9 is indefinite because it is misdescriptive. As shown in figure 16, the drains of the second P channel transistor (N1PA), the first N channel transistor (N1NB), the second N channel transistor (N1NA) coupled to the complementary Q output. Correction is required.

In claim 16, the recitation of “the output” in lines 8, 9 and 12 is indefinite because it is misdescriptive. As shown in figure 16, the drains of the second P channel transistor (N1PA), the first N channel transistor (N1NB), the second N channel transistor (N1NA) coupled to the complementary Q output. Correction is required.

Claims 1, 4, 5, 10-14, 17-39, 42-43, 45, 49-52, 54, 56, 58 and 60 are indefinite because of the technical deficiencies of claim 81.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 81, 1, 10, 11, 12, 14, 23, 24, insofar as understood, are rejected under 35

U.S.C. 102(b) as being anticipated by W0 01/15323 A1 cited by the applicant's PTOL-1449.

Figure 4 of W0 01/15323 A1 show an RS flip flop comprising a set input (SETB), a reset input

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(RESETB), a Q output (Q), complementary Q (QB), a first NAND gate (24), a second NAND gate (25), a ferroelectric capacitor circuit (14, 15, 16, 17) as called for in claims 81 and 1.

Regarding claims 10 and 23, precharge circuit is seen as transistors 18, 19.

Regarding claims 11 and 24, equalizing circuit are seen as capacitors 16, 17.

Regarding claims 12 and 25, gate control circuit is seen as transistors 32 and 33 of figure 5.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2-5 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over W0 01/15323A1 in view of applicant's cited prior art figures 2 and 14. Figure 4 of W0 01/15323 A1 show an RS flip flop comprising a set input (SETB), a reset input (RESETB), a Q output (Q), complementary Q (QB), a first NAND gate (24), a second NAND gate (25), a ferroelectric capacitor circuit (14, 15). The W0 01/15323 A1 reference does not show the detailed structure of the first and second logic gates as NAND gates or NOR gates as called for in claims 2-4 and 15-18. Applicant's admitted prior art figure 2 shows a standard arrangement of a cross coupled NAND gates RS flip flop circuit comprising first P channel (N1PB), second transistor (N1PA), a first N channel (n1na), a second N channel (N1NB). Applicant's admitted prior art figure 2 has only eight transistors and low power consumption. Therefore, it would have been obvious to a person skilled in the art at the time of the invention was made to use the circuit arrangement of

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applicant's admitted prior art figure 2 of the cross coupled NAND gates of W0 01/15323A1 for the purpose of low power consumption.

8. Claims 27-31 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leuschner (USP 4,002,933) in view of W0 01/15323A1. Figure 1 of Leuschner shows JK flip flop comprising a RS flip flop (G4, G5), a J input (J), a K input (K), a clock signal (CK), first NAND (G3), a second NAND gate (G2). Leuschner shows a standard RS flip flop instead of a ferroelectric RS flip flop as called for in claim 27. Figure 4 of W0 01/15323 A1 show a ferroelectric RS flip flop comprising a set input (SETB), a reset input (RESETB), a Q output (Q), complementary Q (QB), a first NAND gate (24), a second NAND gate (25), a ferroelectric capacitor circuit (14, 15). Ferroelectric RS flip flop provides a higher operational speed than the standard RS flip flop. Therefore, it would have been obvious to a person skilled in the art at the time of the invention was made to replace Leuschner's standard RS flip flop (G4, G5) with W0 01/15323A1's ferroelectric RS flip flop for the purpose of increasing operational speed.

Regarding claims 28 and 29, the NAND and NOR gates are seen in figures 3 and 4 of W0 01/15323 A1.

Regarding claims 30 and 31, the controlled power supplies are seen as the PCS and NCS of figure 5 of W0 01/15323 A1.

Regarding claim 35, precharge circuit is seen as transistors 18, 19 of W0 01/15323 A1.

Regarding claim 36, equalizing circuit are seen as capacitors 16, 17 W0 01/15323 A1.

Regarding claim 37, gate control circuit is seen as transistors 32 and 33 of figure 5 of W0

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01/15323 A1.

Allowable Subject Matter

9. Claims 6-9, 13, 19-22, 26, 32-34, 38-39, 42-43, 45, 49-52, 54, 56, 58 and 60 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

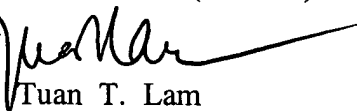
Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In this regard, applicant's cited prior art in the PTOL-1449 has been carefully considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Lam whose telephone number is 571-272-1744. The examiner can normally be reached on Monday to Friday (7:30 am to 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIMOTHY P CALLAHAN can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Tuan T. Lam
Primary Examiner
Art Unit 2816

6/4/2004